

# CLAIMS

What is claimed is:

1. An isolated nucleic acid fragment encoding a 3-methyl-2-oxobutanoate hydroxymethyltransferase comprising a member selected from the group consisting of:

- 5                   (a) an isolated nucleic acid fragment encoding an amino acid sequence that is at least 85% identical to the amino acid sequence set forth in SEQ ID NO:2;
- (b) an isolated nucleic acid fragment that is complementary to (a).

2. The isolated nucleic acid fragment of Claim 1 wherein nucleic acid fragment is  
10 a functional RNA.

3. The isolated nucleic acid fragment of Claim 1 wherein the nucleotide sequence of the fragment comprises the sequence set forth in SEQ ID NO:1.

4. A chimeric gene comprising the nucleic acid fragment of Claim 1 operably linked to suitable regulatory sequences.

15                   5. A transformed host cell comprising the chimeric gene of Claim 4.

6. A 3-methyl-2-oxobutanoate hydroxymethyltransferase polypeptide comprising the amino acid sequence set forth in SEQ ID NO:2.

7. An isolated nucleic acid fragment encoding a formyltetrahydrofolate deformylase comprising a member selected from the group consisting of:

- 20                   (a) an isolated nucleic acid fragment encoding an amino acid sequence that is at least 80% identical to the amino acid sequence set forth in SEQ ID NO:4, 6 and 8;
- (b) an isolated nucleic acid fragment that is complementary to (a).

8. The isolated nucleic acid fragment of Claim 7 wherein nucleic acid fragment is  
25 a functional RNA.

9. The isolated nucleic acid fragment of Claim 7 wherein the nucleotide sequence of the fragment comprises the sequence set forth in SEQ ID NO:3, 5 and 7.

10. A chimeric gene comprising the nucleic acid fragment of Claim 7 operably linked to suitable regulatory sequences.

30                   11. A transformed host cell comprising the chimeric gene of Claim 10.

12. A formyltetrahydrofolate deformylase polypeptide comprising the amino acid sequence set forth in SEQ ID NO:4, 6 and 8.

13. An isolated nucleic acid fragment encoding a glutamate formiminotransferase comprising a member selected from the group consisting of:

- 35                   (a) an isolated nucleic acid fragment encoding an amino acid sequence that is at least 80% identical to the amino acid sequence set forth in SEQ ID NO:10, 12 and 14;
- (b) an isolated nucleic acid fragment that is complementary to (a).

14. The isolated nucleic acid fragment of Claim 13 wherein nucleic acid fragment is a functional RNA.

15. The isolated nucleic acid fragment of Claim 13 wherein the nucleotide sequence of the fragment comprises the sequence set forth in SEQ ID NO:9, 11 and 13.

5 16. A chimeric gene comprising the nucleic acid fragment of Claim 13 operably linked to suitable regulatory sequences.

17. A transformed host cell comprising the chimeric gene of Claim 16.

18. A glutamate formiminotransferase polypeptide comprising the amino acid sequence set forth in SEQ ID NO:10, 12 and 14.

10 19. An isolated nucleic acid fragment encoding a methylenetetrahydrofolate dehydrogenase comprising a member selected from the group consisting of:

(a) an isolated nucleic acid fragment encoding an amino acid sequence that is at least 85% identical to the amino acid sequence set forth in SEQ ID NO:16, 18, 20 and 22;

15 (b) an isolated nucleic acid fragment that is complementary to (a).

20. The isolated nucleic acid fragment of Claim 19 wherein nucleic acid fragment is a functional RNA.

21. The isolated nucleic acid fragment of Claim 19 wherein the nucleotide sequence of the fragment comprises the sequence set forth in SEQ ID NO:15, 17, 19 and 21.

20 22. A chimeric gene comprising the nucleic acid fragment of Claim 19 operably linked to suitable regulatory sequences.

23. A transformed host cell comprising the chimeric gene of Claim 22.

24. A methylenetetrahydrofolate dehydrogenase polypeptide comprising the amino acid sequence set forth in SEQ ID NO:16, 18, 20 and 22.